

WHAT IS CLAIMED IS:

1. A vehicle air conditioner comprising:

an air conditioning unit that blows conditioned air through blowout ports, wherein the blowout ports have a face blowout port that blows the conditioned air toward a driver and a top blowout port that blows the conditioned air toward a windshield;

a control unit that controls air volume of the conditioned air blown from the blowout ports based on heat load of a vehicle and controls a blowout port mode having at least a face blowout port mode;

an outside dew point temperature determination means for determining an outside dew point temperature of outside air; and

an outside windshield temperature estimate means for estimating an outside windshield temperature,

wherein the control unit controls the air volume of the conditioned air blown from the face blowout port and the top blowout port based on the outside dew point temperature and the estimated outside windshield temperature during the face blowout port mode.

2. The vehicle air conditioner according to Claim 1, wherein the top blowout port has a defroster blowout port that defrosts a windshield fogging and an upper blowout port that is disposed between the face blowout port and the defroster blowout port, the upper blowout port blows the conditioned air

indirectly toward the driver, and

the control unit controls the air volume of the conditioned air blown from the upper blowout port based on the outside dew point temperature and the estimated outside windshield temperature in the face blowout port mode.

3. The vehicle air conditioner according to Claim 1, wherein the conditioned air blown from the top blowout port is stopped or decreased when the estimated outside windshield temperature is lower than the outside dew point temperature during the face blowout port mode.

4. The vehicle air conditioner according to Claim 1, wherein the conditioned air blown from the top blowout port is stopped or decreased when the estimated outside windshield temperature is lower than a sum of the outside dew point temperature and an offset temperature during the face blowout port mode.

5. The vehicle air conditioner according to Claim 1, further comprising:

an outside air humidity sensor that detects outside humidity of the outside air; and

an outside air temperature sensor that detects an outside temperature of the outside air,

wherein the outside dew point temperature determination means determine the outside dew point

temperature based on the outside humidity and the outside temperature.

6. The vehicle air conditioner according to Claim 1, further comprising:

a solar radiation sensor that detects a quantity of solar radiation to a vehicle compartment;

an inside air temperature sensor that detects an inside temperature of inside air in the vehicle compartment;  
and

a vehicle speed sensor that detects a speed of the vehicle,

wherein the outside windshield temperature estimate means estimate the outside windshield temperature based on the quantity of the solar radiation, the outside temperature, the inside temperature, and the speed of the vehicle.

7. The vehicle air conditioner according to Claim 2, wherein the air conditioning unit has blowout port switching doors that control the air volume of the conditioned air from the face blowout port, the defroster blowout port, and the upper blowout port, and

the control unit controls the blowout port switching doors to control the blowout port mode.

8. The vehicle air conditioner according to Claim 1, wherein the control unit controls that the conditioned air

volume from the face blowout port is set to larger rate than the conditioned air volume from the top blowout port during a transitional period toward a set temperature in the face blowout port mode, and

the control unit controls that the conditioned air volume from the top blowout port is set to larger rate than the conditioned air volume from the face blowout port during a stable condition in the face blowout port mode.

9. The vehicle air conditioner according to Claim 1, further comprising:

an inside dew point temperature determination means for determining an inside dew point temperature of inside air; and

an inside windshield temperature estimate means for estimating an inside windshield temperature,

wherein the blowout ports have a foot blowout port that blows the conditioned air toward foot of a driver,

the blowout port mode has a foot blowout port mode, and

the control unit controls the air volume of the conditioned air blown from the foot blowout port and the top blowout port based on the inside dew point temperature of the inside air and the estimated inside windshield temperature during the foot blowout port mode.

10. A vehicle air conditioner comprising:

an air conditioning unit that blows conditioned air through blowout ports, wherein the blowout ports have a foot blowout port that blows the conditioned air toward foot of a driver and a top blowout port that blows the conditioned air toward a windshield;

a control unit that controls air volume of the conditioned air blown from the blowout ports based on heat load of a vehicle and controls a blowout port mode having at least a foot blowout port mode;

an inside dew point temperature determination means for determining a inside dew point temperature of inside air; and

an inside windshield temperature estimate means for estimating an inside windshield temperature,

wherein the control unit controls the air volume of the conditioned air blown from the foot blowout port and the top blowout port based on the inside dew point temperature and the estimated inside windshield temperature during the foot blowout port mode.

11. The vehicle air conditioner according to Claim 10, wherein the top blowout port has a defroster blowout port that defrosts a windshield fogging and an upper blowout port that is disposed between a face blowout port and the defroster blowout port, the upper blowout port blows the conditioned air indirectly toward the driver, and

the control unit controls the air volume of the

conditioned air blown from the upper blowout port based on the inside dew point temperature and the estimated inside windshield temperature during the foot blowout port mode.

12. The vehicle air conditioner according to Claim 10, wherein the conditioned air is blown from the top blowout port as well as from the foot blowout port when the estimated inside windshield temperature is lower than the inside dew point temperature during the foot blowout port mode.

13. The vehicle air conditioner according to Claim 10, wherein the top blowout port is fully opened or the conditioned air blown from the top blowout port is increased when the estimated inside windshield temperature is lower than a sum of the inside dew point temperature and an offset temperature during the foot blowout port mode.

14. The vehicle air conditioner according to Claim 10, further comprising:

an inside air humidity sensor that detects inside humidity of the inside air; and

an inside air temperature sensor that detects an inside temperature of the inside air,

wherein the inside dew point temperature determination means determine the inside dew point temperature based on the inside humidity and the inside temperature.

15. The vehicle air conditioner according to Claim 10, further comprising:

a solar radiation sensor that detects a quantity of solar radiation to a vehicle compartment;

an outside air temperature sensor that detects an outside temperature of outside air in the vehicle compartment; and

a vehicle speed sensor that detects a speed of the vehicle,

wherein the inside windshield temperature estimate means estimate the inside windshield temperature based on the quantity of the solar radiation, the outside temperature, the inside temperature, and the speed of the vehicle.

16. The vehicle air conditioner according to Claim 12, wherein the conditioned air is blown from the top blowout port and the foot blowout port when the estimated inside windshield temperature is lower than a sum of the inside dew point temperature and an offset temperature during the foot blowout port mode.